CLAIMS

We claim:

1. A transgenic mouse whose genome comprises a disruption in an endogenous SLC19A2 gene, wherein where the disruption is homozygous, the transgenic mouse lacks production of functional SLC19A2 protein, and exhibits a reproductive system abnormality.
2. The transgenic mouse of claim 1, wherein the transgenic mouse exhibits a genitourinary system abnormality.
3. The transgenic mouse of claim 2, wherein the transgenic mouse exhibits an abnormality of the testis and epididymus.
4. The transgenic mouse of claim 3, wherein the transgenic mouse exhibits reduced combined testicular and epidiymus weights, relative to a wild-type mouse.
5. The transgenic mouse of claim 3, wherein the transgenic mouse exhibits reduced combined testicular and epididymus weight relative to body weight, compared to a wild-type mouse.
6. The transgenic mouse of claim 3, wherein the transgenic mouse exhibits testicular degeneration.
7. The transgenic mouse of claim 6, wherein the transgenic mouse exhibits degenerative changes of the seminiferous tubules.
8. The transgenic mouse of claim 3, wherein the transgenic mouse exhibits hypospermatogenesis.
9. The transgenic mouse of claim 3, wherein the transgenic mouse exhibits aspermia of the epididymus.
10. A cell or tissue obtained from the transgenic mouse of claim 1.
11. A transgenic mouse comprising a heterozygous disruption in an endogenous SLC19A2 gene, wherein the disruption in a homozygous state inhibits production of functional SLC19A2 protein resulting in a transgenic mouse exhibiting a reproductive system abnormality.
12. A method of producing a transgenic mouse comprising a disruption in an endogenous SLC19A2 gene, the method comprising:
    (a) providing an murine embryonic stem cell comprising a disruption in an endogenous SLC19A2 gene; and
    (b) introducing the murine stem cell into a pseudopregnant mouse, wherein the pseudopregnant mouse gives birth to a transgenic mouse;

wherein where the disruption is homozygous, the transgenic mouse lacks production of functional SLC19A2 protein and exhibits a reproductive system abnormality.

13. The transgenic mouse produced by the method of claim 12.

14. A targeting construct comprising:

(a) a first polynucleotide sequence homologous to at least a first portion of an endogenous SLC19A2 gene;

(b) a second polynucleotide sequence homologous to at least a second portion of the endogenous SLC19A2 gene; and

(c) a selectable marker located between the first and second polynucleotide sequences;

wherein the targeting construct, when introduced into a murine embryonic stem cell produces a murine embryonic stem cell comprising a disruption in the endogenous SLC19A2 gene.

15. A murine embryonic stem cell comprising a disruption in an endogenous SLC19A2 gene, the disruption produced using the targeting construct of claim 14.